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January 2004

Test 1838: John Deere 5105 Diesel 8-Speed (Chassis S/N 512000 and Higher)

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1838

JOHN DEERE 5105 DIESEL

8 SPEED

Chassis Serial numbers 512000 and higher

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
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MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—564 rpm)					
45.85 (34.19)	2300	2.76 (10.43)	0.422 (0.257)	16.64 (3.28)	
Standard Power Take-off Speed - (540 rpm)					
47.15 (35.16)	2199	2.78 (10.54)	0.415 (0.252)	16.93 (3.34)	
Maximum Power (2 Hours)					
47.56 (35.47)	2101	2.78 (10.54)	0.411 (0.250)	17.08 (3.36)	

VARYING POWER AND FUEL CONSUMPTION

45.85 (34.19)	2300	2.76 (10.43)	0.422 (0.257)	16.64 (3.28)	Air temperature
40.03 (29.85)	2361	2.48 (9.38)	0.435 (0.264)	16.15 (3.18)	77°F (25°C)
30.80 (22.97)	2407	2.05 (7.76)	0.467 (0.284)	15.02 (2.96)	Relative humidity
20.85 (15.55)	2444	1.50 (5.66)	0.504 (0.306)	13.94 (2.75)	59%
10.45 (7.79)	2483	1.07 (4.04)	0.718 (0.436)	9.79 (1.93)	Barometer
0.59 (0.44)	2506	0.68 (2.59)	8.198 (4.987)	0.86 (0.17)	28.62"Hg (96.92 kPa)

Maximum Torque 133 lb.-ft. (180 Nm) at 1456 rpm
Maximum Torque Rise - 26.8%
Torque rise at 1798 rpm - 20%

TRACTOR SOUND LEVEL WITHOUT CAB

	dB(A)
At no load in 3rd(A3) gear	89.6
Transport speed - no load - 8th(B4) gear	92.7
Bystander in 8th(B4) gear	81.4

TIRES AND WEIGHT

Rear Tires—No., size, ply & psi (kPa)
Front Tires—No., size, ply & psi (kPa)
Height of Drawbar
Static Weight with operator—Rear
—Front
—Total

Tested Without Ballast
Two 16.9-28; 6; 12 (85)
Two 7.50-16; 6; 32 (220)
17.5 in (445 mm)
2755 lb (1249 kg)
1545 lb (701 kg)
4300 lb (1950 kg)

Location of Test: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832

Dates of Test: May 26 - 27, 2004

Manufacturer: John Deere Commercial Products Inc., 700 Horizon South Parkway, Grovetown Ga. USA, 30813

FUEL, OIL and TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8432 Fuel weight 7.021 lbs/gal (0.841 kg/l) Oil SAE 15W40 API service classification CG-4 Transmission and hydraulic lubricant John Deere Hy-Gard Fluid Total time engine was operated 9.5 hours

ENGINE: Make John Deere Diesel Type three cylinder vertical Serial No. *PE3029D321398* Crankshaft lengthwise Rated engine speed 2300 Bore and stroke 4.19" x 4.33" (106.4 mm x 110.0 mm) Compression ratio 17.4 to 1 Displacement 179 cu in (2934 ml) Starting system 12 volt Lubrication pressure Air cleaner one paper element and one polyester felt element Oil filter one full flow cartridge Fuel filter one paper element Muffler underhood Exhaust vertical Cooling medium temperature control one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 17.9 - 20.1 lb/h (8.1 - 9.1 kg/h) High idle: 2475 - 2525 rpm

CHASSIS: Type Standard Serial No. *LV5105C512136* Tread width rear 55.8" (1417 mm) to 71.7" (1820 mm) front 57.0" (1449 mm) to 82.0" (2083 mm) Wheelbase 76.8" (1950 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.94 (3.13) second 2.78 (4.48) third 3.93 (6.33) fourth 5.51 (8.87) fifth 6.44 (10.36) sixth 9.72 (15.64) seventh 13.74 (22.11) eighth 19.26 (31.00) reverse 2.32 (3.74), 3.32 (5.34), 4.70 (7.56), 6.58 (10.59) Clutch single dry disc operated by foot pedal Brakes single wet disc mechanically operated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 2199 engine rpm Unladen tractor mass 4125 lb (1871 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 3173 lbs (14.1 kN)

i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2820 psi (194 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	11.6 GPM (43.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	9.5 GPM (36.0 l/min)
Delivery pressure:	2500 psi (172 bar)
Power:	13.9 HP (10.4 kW)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi.(bar)	2760(190)
Location:	hydraulic service port
Hydraulic oil temperature: °F(°C)	158(70)
Location:	hydraulic sump
Category:	II
Quick attach:	none

SAE Static Test—System pressure 2485 psi (171 Bar)

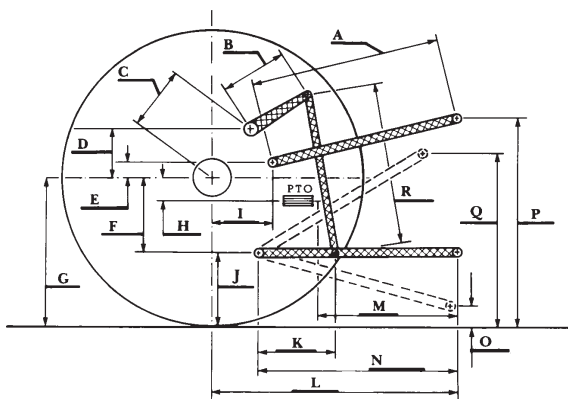
Hitch point distance to ground level in. (mm)	8.0 (203)	15.0 (381)	22.0 (559)	29.0 (737)	36.0 (914)
Lift force on frame lb	3812	4190	4356	4275	4124
" " " " " (kN)	(17.0)	(18.6)	(19.4)	(19.0)	(18.3)

ASAE Static Test—System pressure 2755 psi (190 Bar)

Hitch point distance to ground level in. (mm)	8.0 (203)	15.0 (381)	22.0 (559)	29.0 (737)	36.0 (914)
Lift force on frame lb	4227	4680	4884	4776	4568
" " " " " (kN)	(18.8)	(20.8)	(21.7)	(21.2)	(20.7)

	SAE/ASAE Test		OECD Test	
	inch	mm	inch	mm
A	24.3	617	25.2	641
B	11.4	290	11.4	290
C	13.2	334	13.2	334
D	12.1	308	12.1	308
E	12.0	305	12.0	305
F	4.9	124	4.9	124
G	26.4	670	26.4	670
H	1.8	46	1.8	46
I	12.0	305	12.0	305
J	21.5	546	21.5	546
K	15.8	402	15.8	402
L	36.2	918	36.2	918
M	21.9	555	21.9	555
N	29.9	760	29.9	760
O	8.0	203	8.0	203
P	40.5	1029	45.5	1156
Q	36.1	916	36.1	916
R	22.5	572	22.5	572

HITCH DIMENSIONS AS TESTED - NO LOAD



Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Darrell Nelson, Dean and Director

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: The performance data on this report applies to tractor chassis serial numbers 512000 and higher.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 133°F (56°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1838**, July 13, 2004.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
W.P. Campbell
Board of Tractor Test Engineers



John Deere 5105 Diesel